

Name: _____ Date: _____

Today's Question:

How do we find arc length and area of sectors using proportions?

Standard: MM2G3.c



Vocabulary

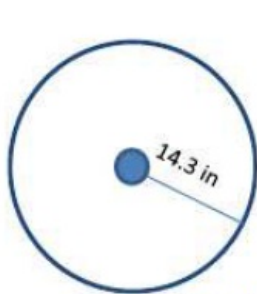
Circumference: The distance around the circle.

Circumference Formula

$$C = \frac{2\pi r}{\text{or}} \pi d$$

r = radius
d = diameter

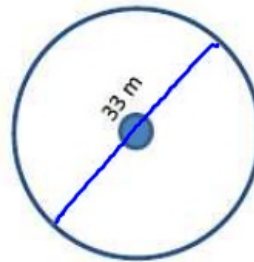
Example 1: Find the circumference in terms of π and to the nearest tenth.



$$C = 2\pi(14.3)$$

$$= 89.8$$

Terms of pi: $\frac{143\pi}{5}$



$$C = \pi d$$

$$C = \pi(33)$$

$103.7m$

→ 33π

Vocabulary

Arc Length: Portion of the Circumference.

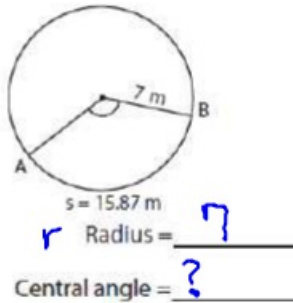
Arc Length Formula

$$\underline{\text{Arc Length}} = \frac{2\pi r \theta}{360^\circ}$$

Arc Length Formula

$$\underline{A.L.} = \frac{2\pi r \theta}{360^\circ}$$

②

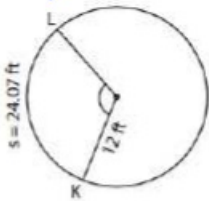


A.L. Length of the arc AB = 15.87

$$360^\circ \cdot 15.87 = \frac{2\pi \cdot 7 \cdot \theta}{360} \cdot 360$$

$$\frac{5713.2}{(2\pi \cdot 7)} = \frac{2\pi \cdot 7 \cdot \theta}{(2\pi \cdot 7)}$$

$$\boxed{129.9 = \theta}$$



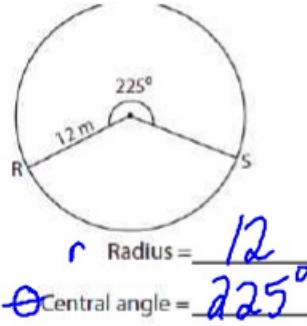
A.L. Length of the arc KL = 24.07

$$360^\circ \cdot 24.07 = \frac{2\pi \cdot 12 \cdot \theta}{360} \cdot 360$$

$$\frac{8665.2}{(2\pi \cdot 12)} = \frac{2\pi \cdot 12 \cdot \theta}{(2\pi \cdot 12)}$$

$$114.9 = \theta$$

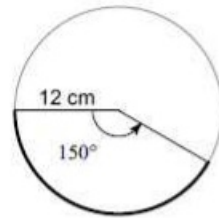
①



Length of the arc RS = ?

$$A.L. = \frac{2\pi \cdot 12 \cdot 225}{360} = 15\pi$$

$$\boxed{A.L. = 47.1 \text{ m}}$$



radius: 12
 Central $\angle = 150^\circ$
 A.L. = ?

$$A.L. = \frac{2\pi \cdot 12 \cdot 150}{360}$$

$$\boxed{A.L. = 3.4}$$

$\leftarrow 10\pi$